The "Trout" is a modified C-135C operated by the 412th Flight Testing Squadron, Edwards AFB, Calif., and has long been used as both a dignitary transport and a test platform for new communications systems.

speckled trout, scope able & net-centric warfare

By Capt. Hew Wells
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SCOTT AFB, Ill.—The Air Force's Speckled Trout test-bed aircraft has become the aircraft of choice for testing many of the concepts for future Air Force airborne network programs. These tests are usually for highly advanced technology that needs further development before becoming mainstream Air Force equipment. The Air Force Communications Agency also uses the aircraft for testing and validating equipment and concepts to support Net-Centric Operations and Warfare.

PROVIDING LAN: Working with AFCA are engineers who recently provided a wireless local area network onboard the C-135, providing senior leaders with high speed bandwidth. The LAN gives passengers access to classified and unclassified networks while airborne.

"The primary objective [of these first tests] was to prove out the system in flight to check the airworthiness of the equipment, and see how it can handle varying temperatures and vibrations during takeoffs and landings. It also was to test its supportability throughout the flight," said Capt. Dick Wong, 412th Flight Training Squadron (Edwards AFB, Calif.) flight test engineer and test director.

IP ADDRESSING: The next development will add additional capability such as mobile Internet Protocol addressing, which allows access to the "home station" LAN from anywhere in the world. This is similar to how a cell phone can switch from cell tower to cell tower while traveling across the country and still receive phone calls.

VoIP: Another phase of development will enhance communications with Voice over IP, or VoIP, technology. This technology allows a digitized voice to travel in packets along the same LAN that data packets travel on at the same time. These upgrades should all be completed by 2005 to provide an "office in the sky."

SCOPE ABLE: Because Speckled Trout is a dual use aircraft, it's not always available for testing. AFCA decided that instead of using another airborne platform, testing could be done on a ground-based fuselage based here. Out of this idea came the Scope Able platform. AFCA is acquiring a DC-9 fuselage to permanently place behind its building. This will provide an alternative test platform that is available year-round for equipment modifications and does not require Federal Aviation Administration or Air Force Flight Standards Agency approval for operations, which may prove a valuable first step in proof-of-concept. Scope Able allows AFCA to duplicate the equipment installed on aircraft such as the Speckled Trout and the C-40, while keeping the same environment as an operational aircraft. Technicians can experiment with the right mix of equipment to fit the size and weight constraints of an aircraft in a cost-effective manner prior to actual flight-testing.

Initial "Office in the Sky" comm package for Speckled Trout.

OFFICE IN THE SKY: These test platforms will greatly enhance AFCA's ability to develop the future airborne network services. Ideally, AFCA will prove the "office in the sky" concepts and develop the future airborne network that will guarantee information superiority. These services will provide voice, data, and video all delivered through a low-latency transport system with a high degree of information assurance. AFCA can validate that future networks can dynamically and seamlessly link airborne nodes together and automatically provide the connectivity to space and ground networks. The platforms will also demonstrate that an airborne network has the degree of information assurance required to protect data and network resources from enemy attacks, all while delivering the right information to authorized users.